AQUACULTURE DRUG APPROVAL DEVELOPMENT STATUS

17 α-METHYLTESTOSTERONE (MASCULINIZING FEED FOR TILAPIA®): RESEARCH AND DEVELOPMENT PLAN AND LABEL CLAIM MATRICES FOR ORIGINAL AND SUPPLEMENTAL NEW ANIMAL DRUG APPLICATION (NADA) APPROVALS

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17 α-METHYLTESTOSTERONE (MASCULINIZING FEED FOR TILAPIA®)
(Version 2, March 2008)

ABBREVIATIONS, ACRONYMS, & CONTACT INFORMATION FOR ENTITIES IN TABLE

AADAP	Aquatic Animal Drug Approval Partnership Program—Dr. David Erdahl, U.S. Fish and Wildlife Service, 4050 Bridger Canyon Road, Bozeman, Montana 59715; Phone: 406-994-9904; Fax: 406-582-0242; E-mail: Dave_Erdahl@fws.gov
AOI	All Other Information Technical Section, not included in any of the other sections, that is pertinent to an evaluation of effectiveness or safety [21 CFR § 514.1(b)(8)(iv)]
AQUAT	AquaTechnics: Ralph Elston, PO Box 687, Carlsborg, WA 98324; Phone: 360-681-3122; Fax: 360-681-3123; E-mail: aquztech@olypen.com
AUBURN	Auburn University: Dr. Ron Phelps, 203 Swingle Hall, Auburn University, AL 36849; Phone: 334-844-9317; Fax: 334-844-9208; E-mail: RPPhelps@acesag.auburn.edu
CORNELL	Cornell University: Dr. Mike Timmons, 302 Riley-Robb Hall, Ithaca, NY 14853; Phone: 607-255-1630; Fax: 607-255-4080; E-mail: mbt3@cornell.edu
CVM	Aquaculture Drugs Team (HFV-131), Division of Therapeutic Drugs for Food Animals, Office of New Animal Drug Evaluations, Center for Veterinary Medicine, U.S. Food and Drug Administration, 7500 Standish Place, Rockville, MD 20855; Dr. Donald Prater; Phone: 240-276-8343; E-mail: Donald.Prater@fda.hhs.gov
Efficacy	Effectiveness Technical Section includes pivotal & supportive studies that show whether or not a drug is effective for its intended use [21 CFR § 514.1(b)(8)(i)]
FOI	Final Freedom of Information summary generated by CVM based on draft FOIs developed by researchers for each study [21 CFR § 514.11(e)(2)(ii)]
INAD	Investigational New Animal Drug exemption [21 CFR 511]
Label	Labeling Technical Section includes labeling and package inserts [21 CFR § 514.1(b)(3)]
NADA	New Animal Drug Application [21 CFR 514]
NADA Coordinator	Rosalie (Roz) Schnick, National Coordinator for Aquaculture New Animal Drug Applications, Michigan State University, 3039 Edgewater Lane, La Crosse, Wisconsin 54603-1088; Phone: 608-781-2205; Fax: 608-783-3507; E-mail: RozSchnick@centurytel.net
NCRAC	North Central Regional Aquaculture Center: Dr. Ted Batterson, Director, NCRAC, Michigan State University, 13 Natural Resources Building, East Lansing, MI 48824; Phone: (517) 353-1962; Fax: (517) 353-7181; E-mail: batters2@msu.edu
Product Chemistry	Product Chemistry Technical Section includes chemistry, manufacturing, and controls [21 CFR § 514.1(b)(4-6)]
PMF	Public Master File can contain safety and efficacy data and information generated with public funds (Guidance Document #57)
RANGEN	Sponsor of 17 α-methyltestosterone: David Brock, Rangen, Inc., 115 13th Avenue South, Buhl, ID 83316; Phone: 208-543-6421; E-mail: DBrock@Rangen.com
SIUC	Southern Illinois University-Carbondale: Dr. Anita Kelly, Fisheries & Illinois Aquaculture Center, Mailcode 6511, Carbondale, IL 62901; Phone: 618-453-6099; Fax: 618-453-6095; E-mail: akelly@siu.edu
SNARC	Harry K. Dupree Stuttgart National Aquaculture Research Center—Dr. David Straus, Agricultural Research Service, PO Box 860, Stuttgart, Arkansas 72160-0860; Phone: 870-673-4483; Fax: 870-673-7710; E-mail: dave.straus@ars.usda.gov
Toxicology	Part of Human Food Safety Technical Section, toxicological testing includes genetic toxicity tests and mammalian safety studies (e.g., acute, sub chronic) (Guidance Document #3)

UMESC	Upper Midwest Environmental Sciences Center—Mark Gaikowski, 2630 Fanta Reed Road, La Crosse, Wisconsin 54603; Phone: 608-783-6451; Fax: 608-783-6066; E-mail: MGaikowski@usgs.gov
UW-M	University of Wisconsin at Madison: Dr. Terence Barry, UW Aquaculture Program Department of Animal Sciences, 1675 Observatory Drive, Madison, WI 53706; Phone: 608- 843-1425; E-mail: tpbarry@wisc.edu

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COLOR	STATUS
	No current plans and/or funds
	In progress or planned; funded
	Submitted to CVM
	Accepted by CVM

17 α-METHYLTESTOSTERONE (MASCULINIZING FEED FOR TILAPIA®)

17 α-Methyltestosterone (MASCULINIZING FEED FOR TILAPIA®) NADA approvals (none to date)

17 α-METHYLTESTOSTERONE (MASCULINIZING FEED FOR TILAPIA®)

Status of Technical Sections that support all original and supplemental NADA approvals

Technical Section	Entity—Data—Action	Impediments—Action
Product Chemistry (package)	RANGEN (INAD #10-296)—Product Chemistry/MASCULINIZING FEED FOR TILAPIA®—CVM asked for refined analytical method in feed, additional feed studies & rewrite of submission	None—pending acceptance; see below
Product Chemistry (feed method)	UW-M (under UMESC INAD #11-395)—Product Chemistry/MASCULINIZING FEED FOR TILAPIA®/refined analytical method in feed—accepted 12/2/05	None—funded by NCRAC
Product Chemistry (feed method transfer)	CanTest, Inc. & UW-M (under UMESC INAD #11-395)—Product Chemistry/MASCULINIZING FEED FOR TILAPIA®/feed method transfer—planned	None—funding anticipated
Product Chemistry (feed studies)	UW-M (under RANGEN INAD #10-296)—Product Chemistry/MASCULINIZING FEED FOR TILAPIA®/feed studies—ready to be submitted 3/08	None—pending acceptance; funded by NCRAC
Product Chemistry (for feed other than MASCULINIZING FEED FOR TILAPIA®)	No entity identified—Product Chemistry/feed other than MASCULINIZING FEED FOR TILAPIA®—needs to be planned & funded	Needs to be planned & funded
Environmental Safety (tilapia culture systems)	AUBURN (INAD #9647)—Environmental Safety/environmental assessment/tilapia—CVM asked for more accurate analytical method in water, biodegradation study, & rewrite of the EA; rewrite when biodegradation study accepted	None—see below for action needed
Environmental Safety (tilapia culture systems)	UW-M (under UMESC INAD #11-395)—Environmental Safety/analytical method in water—submitted 10/1/07	None—pending acceptance; funded by NCRAC
Environmental Safety (tilapia culture systems)	UW-M (under UMESC INAD #11-395)—Environmental Safety/biodegradation studies—submitted 10/1/07	None—pending acceptance; funded by NCRAC
Environmental Safety (ornamental finfish culture systems)	No entity identified—Environmental Safety/environmental assessment/ornamental finfish culture systems/paper argument—needs to be planned & funded	Needs to be planned & funded
Environmental Safety (freshwater-reared salmonid culture systems)	No entity identified—Environmental Safety/environmental assessment/freshwater-reared salmonid culture systems/paper argument—needs to be planned & funded	Needs to be planned & funded
Environmental Safety (percid culture systems)	No entity identified—Environmental Safety/environmental assessment/percid culture systems/paper argument—needs to be planned & funded	Needs to be planned & funded
Human Food Safety (toxicology)	AUBURN (INAD #9647)—Human Food Safety/toxicology—accepted 2/7/97	None—This Technical Section is complete for all finfish
Human Food Safety (residue chemistry/tilapia)	AUBURN (INAD #9647) & RANGEN (INAD #10-296)—Human Food Safety/residue chemistry/tilapia/literature, data, and feed size argument for tilapia medicated feeds—accepted 2/7/97; validated method for detecting MT in tissues of tilapia, rainbow trout, and salmon—published in J. Agric. Food Chem. 54: 3193-3198, 2006.	None—This Technical Section is complete for tilapia
Human Food Safety (residue chemistry/	No entity identified—Human Food Safety/residue chemistry/freshwater-reared salmonids/paper	Needs to be planned & funded

freshwater-reared salmonids)	argument &/or additional data—needs to be planned & funded	
Technical Section	**Entity—Data—Action**	**Impediments—Action**
Human Food Safety (residue chemistry/percids)	No entity identified—Human Food Safety/residue chemistry/percids/paper argument &/or additional data—needs to be planned & funded	Needs to be planned & funded
Human Food Safety (Drug Exemption Administration exemption)	RANGEN (INAD #10-296) & NADA Coordinator—Human Food Safety/Drug Exemption Administration exemption—in progress	None—funding anticipated
Target Animal Safety (tilapia)	AUBURN (INAD #9647)—Target Animal Safety/tilapia/literature—CVM required pivotal target animal safety study 2/4/04	None—see below for action needed
Target Animal Safety (tilapia)	SIUC (under AADAP INAD #11-236)—Target Animal Safety/study/tilapia—study not acceptable 8/17/07	Need to repeat study
Target Animal Safety (tilapia)	SNARC (under AADAP INAD #11-236)—Target Animal Safety/study/tilapia—planned	None—mainly under SNARC base funding & additional funding anticipated
Target Animal Safety (ornamental finfish)	No entity identified— Target Animal Safety/ornamental finfish—needs to be planned & funded	Needs to be planned & funded
Target Animal Safety (freshwater-reared salmonids)	No entity identified— Target Animal Safety/ freshwater-reared salmonids—needs to be planned & funded	Needs to be planned & funded
Target Animal Safety (percids)	No entity identified— Target Animal Safety/percids—needs to be planned & funded	Needs to be planned & funded

17 α-METHYLTESTOSTERONE (MASCULINIZING FEED FOR TILAPIA®)

LABEL CLAIM #1
SPECIES: TILAPIA
INDICATIONS: **For masculinization of female early life-stage tilapia**
DIRECTIONS FOR USE: Administer MASCULINIZING FEED FOR TILAPIA® (60 milligrams=mg 17α-methyltestosterone per kilogram=kg of feed) at a dose of 9 mg 17α-methyltestosterone active ingredient per kg of fish biomass per day for 28 consecutive days starting with newly hatched fry. Therefore, based on standardized procedures for tilapia production, newly hatched fry will be fed 150 grams MASCULINIZING FEED FOR TILAPIA® per kg of fish biomass per day (i.e., fed at 15% body weight daily).

Technical Section	Entity—Data—Action	Impediments—Action
Efficacy (tilapia)	AUBURN (INAD #9647)—Preliminary efficacy data & literature/tilapia—CVM required pivotal study 2/4/04	None—see below for action needed
Efficacy (tilapia)	AADAP (INAD #11-236)—Efficacy/supportive/studies—in progress	None—pending acceptance
Efficacy (tilapia)	AADAP (INAD #11-236)—Efficacy/pivotal/studies/tilapia—accepted 7/27/07	More studies needed for Complete Technical Section
Efficacy (tilapia)	CORNELL (INAD #9967)—Efficacy/tilapia—accepted as supportive when raw data are submitted 9/23/04	None if pivotal data by AADAP is accepted & complements its data
Efficacy (tilapia)	AADAP (INAD #11-236)—Efficacy/additional pivotal studies—in progress	None—pending acceptance
Label	RANGEN (INAD #10-296) & NADA Coordinator—Label—planned in the future	None—pending acceptance
FOI	CVM—FOI/tilapia—planned in the future with input from AADAP, Auburn, & RANGEN input	None—pending acceptance
AOI	RANGEN (INAD #10-296) & NADA Coordinator—AOI/tilapia—planned in the future	None—pending acceptance
NADA Package	RANGEN (INAD #10-296) & NADA Coordinator—Administrative NADA package/tilapia—planned in the future	None—pending acceptance

17 α-METHYLTESTOSTERONE (MASCULINIZING FEED FOR TILAPIA®)

LABEL CLAIM #2
SPECIES: ORNAMENTAL FINFISH
INDICATIONS: **For manipulation of gender in ornamental finfish**
DIRECTIONS FOR USE: Apply MASCULINIZING FEED FOR TILAPIA® (60 milligrams=mg 17α-methyltestosterone per kilogram=kg of feed) at a dose of __ mg 17α-methyltestosterone active ingredient per kg of fish biomass per day for __ consecutive days.

Technical Section	Entity—Data—Action	Impediments—Action
Efficacy (ornamental finfish)	**UFL (INAD #11-128)— Pivotal efficacy/ornamental finfish—in progress**	**None—pending acceptance**
Label	**RANGEN (INAD #10-296) & NADA Coordinator—Label/ ornamental finfish—planned in the future when all other data & information are generated on this grouping**	**None—pending acceptance**
FOI	**CVM—FOI/ornamental finfish—planned in the future when all other data & information are generated on this grouping**	**None—pending acceptance**
AOI	**RANGEN (INAD #10-296) & NADA Coordinator—AOI/ ornamental finfish—planned in the future when all other data & information are generated on this grouping**	**None—pending acceptance**
NADA Package	**RANGEN (INAD #10-296) & NADA Coordinator—Administrative NADA/ornamental finfish—planned in the future when all other data & information are generated on this grouping**	**None—pending acceptance**

17 α-METHYLTESTOSTERONE (MASCULINIZING FEED FOR TILAPIA®)

LABEL CLAIM #3
SPECIES: FRESHWATER-REARED SALMONIDS
INDICATIONS: **For manipulation of gender in freshwater-reared salmonids**
DIRECTIONS FOR USE: Apply MASCULINIZING FEED FOR TILAPIA® (60 milligrams=mg 17α-methyltestosterone per kilogram=kg of feed) at a dose of __ mg 17α-methyltestosterone active ingredient per kg of fish biomass per day for __ consecutive days.

Technical Section	Entity—Data—Action	Impediments—Action
Efficacy (freshwater-reared salmonids)	**AQUAT (INAD #8557)— Pivotal efficacy/freshwater-reared salmonids—in progress**	**None—pending acceptance**
Label	**RANGEN (INAD #10-296) & NADA Coordinator—Label/ freshwater-reared salmonids—planned in the future when all other data & information are generated on this grouping**	**None—pending acceptance**
FOI	**CVM—FOI/freshwater-reared salmonids—planned in the future when all other data & information are generated on this grouping**	**None—pending acceptance**
AOI	**RANGEN (INAD #10-296) & NADA Coordinator— AOI/ freshwater-reared salmonids—planned in the future when all other data & information are generated on this grouping**	**None—pending acceptance**
NADA Package	**RANGEN (INAD #10-296) & NADA Coordinator— Administrative NADA/freshwater-reared salmonids— planned in the future when all other data & information are generated on this grouping**	**None—pending acceptance**

17 α-METHYLTESTOSTERONE (MASCULINIZING FEED FOR TILAPIA®)

LABEL CLAIM #4
SPECIES: PERCIDS
INDICATIONS: **For manipulation of gender in percids**
DIRECTIONS FOR USE: Apply MASCULINIZING FEED FOR TILAPIA® (60 milligrams=mg 17α-methyltestosterone per kilogram=kg of feed) at a dose of __ mg 17α-methyltestosterone active ingredient per kg of fish biomass per day for __ consecutive days.

Technical Section	Entity—Data—Action	Impediments—Action
Efficacy (percids)	**No entity identified— Pivotal efficacy/percids—needs to be planned & funded**	**Needs to be planned & funded**
Label	**RANGEN (INAD #10-296) & NADA Coordinator—Label/ percids—planned in the future when all other data & information are generated on this grouping**	**None—pending acceptance**
FOI	**CVM—FOI/percids—planned in the future when all other data & information are generated on this grouping**	**None—pending acceptance**
AOI	**RANGEN (INAD #10-296) & NADA Coordinator— AOI/ percids—planned in the future when all other data & information are generated on this grouping**	**None—pending acceptance**
NADA Package	**RANGEN (INAD #10-296) & NADA Coordinator— Administrative NADA/percids—planned in the future when all other data & information are generated on this grouping**	**None—pending acceptance**